**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A rotation angle detecting device for a rotary object comprising:

a rotor connected to the rotary object and including a yoke and a pair of permanent magnets fixed to said yoke at portions thereof opposite to each other with respect to a rotation axis thereof, said pair of permanent magnets being magnetized in ~~radial directions~~ a direction to be different in polarity from each other; and

a magnetic detector, disposed at the rotation axis of the rotation object, for detecting magnetic flux density of the magnetic flux;

wherein at least one of said pair of permanent magnets has a circumferentially extending rut-shape concavity around said ~~magnet~~ magnetic detector, said rut-shape concavity having a surface curved in a plane that includes said rotation axis to make magnetic flux density in the vicinity of said magnetic detector constant in an axial direction parallel with the center axis.

2. (Currently amended) A rotation angle detecting device for a rotary object comprising:

a rotor connected to the rotary object and including a cylindrical yoke and a pair of permanent magnets fixed to said yoke at portions thereof opposite to each other, said pair of permanent magnets being magnetized in ~~radial directions~~ a direction to be different in polarity from each other; and

a magnetic detector, disposed at a rotation axis of the rotor for detecting magnetic flux density of the magnetic flux;

wherein at least one of said pair of permanent magnets has an axially extending elliptic columnar surface that is concavely curved at least in a plane perpendicular to said rotation axis and having a central portion thicker than ~~others~~ other portions thereof

to make magnetic flux density constant in the vicinity of said magnetic detector in a direction in parallel with the diametrically extending axis.

Claim 3. (Canceled).

4. (Currently amended) The rotation angle detecting device according to claim 2,

wherein at least one of said pair of permanent magnets has a circumferentially extending rut-shape concavity at a surface thereof around said ~~magnet~~ magnetic detector, said rut-shape concavity having a surface curved in a plane that includes said rotation axis to make magnetic flux density in the vicinity of said magnetic detector constant in a direction parallel with the center axis.

Claim 5. (Canceled).

6. (Withdrawn) The rotation angle detecting device according to claim 1,

wherein each of said pair of permanent magnets has a semi-cylindrical inner and outer surface extending in the axial direction.

7. (Withdrawn) The rotation angle detecting device according to claim 1,

wherein each of said pair of permanent magnets comprises a plurality of magnet pieces aligned in a circumferential direction.

8. (Withdrawn) The rotation angle detecting device according to claim 1,

wherein each of said pair of permanent magnets extends in parallel to each other in both axial and diametrical directions.

9. (Original) The rotation angle detecting device according to claim 1,

wherein the rut-shape concavity is disposed at the center of said permanent magnets in its axial direction.

10. (Withdrawn) The rotation angle detecting device according to claim 9, wherein said permanent magnets are flat except the rut-shape concavity.

11. (Original) The rotation angle detecting device according to claim 2, the elliptic columnar surface is disposed at a radially inner surface of said permanent magnets.

12. (Original) The rotation angle detecting device according to claim 1, wherein the rut-shape concavity is disposed at a radially inner surface of said pair of permanent magnets.

13. (Withdrawn) The rotation angle detecting device according to claim 1, wherein the rut-shape concavity is disposed at a radially outer surface of said pair of permanent magnets.

14. (Currently amended) ~~The~~ A rotation angle detecting device ~~according to claim 11~~ for a rotary object comprising:

a rotor connected to the rotary object and including a cylindrical yoke and a pair of permanent magnets fixed to said yoke at portions thereof opposite to each other, said pair of permanent magnets being magnetized in radial directions to be different in polarity from each other; and

a magnetic detector, disposed at a rotation axis of the rotor for detecting magnetic flux density of the magnetic flux;

wherein at least one of said pair of permanent magnets has an axially extending elliptic columnar surface having a central portion thicker than others to make magnetic

flux density constant in the vicinity of said magnetic detector in a direction in parallel with the diametrically extending axis,

wherein the elliptic columnar surface is disposed at a radially inner surface of said permanent magnets, and

wherein the elliptical columnar surface has a surface of a multidimensional curve.

15. (Currently amended) ~~The~~ A rotation angle detecting device ~~according to claim 12~~ for a rotary object comprising:

a rotor connected to the rotary object and including a yoke and a pair of permanent magnets fixed to said yoke at portions thereof opposite to each other with respect to a rotation axis thereof, said pair of permanent magnets being magnetized in radial directions be different in polarity from each other; and

a magnetic detector, disposed at the rotation axis of the rotation object, for detecting magnetic flux density of the magnetic flux;

wherein at least one of said pair of permanent magnets has a circumferentially extending rut-shape concavity around said magnet detector to make magnetic flux density in the vicinity of said magnetic detector constant in an axial direction parallel with the center axis,

wherein the rut-shape concavity is disposed at a radially inner surface of said pair of permanent magnets, and

wherein the rut-shape concavity has a surface of a multidimensional curve.

16. (Original) The rotation angle detecting device according to claim 2, the elliptic columnar surface is disposed at both the radially inner and outer surfaces of said permanent magnets.

17. (Currently amended) ~~The~~ A rotation angle detecting device ~~according to claim 16~~ for a rotary object comprising:

a rotor connected to the rotary object and including a cylindrical yoke and a pair of permanent magnets fixed to said yoke at portions thereof opposite to each other, said pair of permanent magnets being magnetized in radial directions to be different in polarity from each other; and

a magnetic detector, disposed at a rotation axis of the rotor for detecting magnetic flux density of the magnetic flux;

wherein at least one of said pair of permanent magnets has an axially extending elliptic columnar surface having a central portion thicker than others to make magnetic flux density constant in the vicinity of said magnetic detector in a direction in parallel with the diametrically extending axis,

wherein the elliptic columnar surface is disposed at both the radially inner and outer surfaces of said permanent magnets, and

wherein the elliptical columnar surface is asymmetric with respect to the circumferential center line of said permanent magnets.

18. (Original) The rotation angle detecting device according to claim 2,

wherein different columnar surfaces are respectively disposed at the radially inner and outer surfaces of said permanent magnets.

19. (Original) The rotation angle detecting device according to claim 15,

wherein the rut-shape concavity has multidimensional curved surfaces which are asymmetric with respect to the axial center line of said permanent magnets.

20. (Currently amended) A rotation angle detecting device for a rotary object comprising:

a rotor fixed to the rotary object and including a yoke and a pair of permanent magnets fixed to said yoke at portions thereof opposite to each other with respect to a rotation axis thereof, said pair of permanent magnets being magnetized in ~~radial directions~~ a direction to be different in polarity from each other; and

a magnetic detector, disposed at the rotation axis of the rotation object, for detecting magnetic flux density of the magnetic flux;

wherein at least one of said pair of permanent magnets has a ~~concavity~~ concave groove extending in a direction around said rotation axis, said concave groove having a surface curved in a plane including said rotation axis for providing even magnetic flux density at a portion around said magnetic detector.

21. (Currently amended) A rotation angle detecting device for a rotary object comprising:

a rotor fixed to the rotary object and including a permanent magnet being magnetized in a radial direction; and

a magnetic detector, disposed at ~~the~~ a rotation axis of the ~~rotation~~ rotary object, for detecting magnetic flux density;

wherein said permanent magnet has a concave axially extending elliptic columnar surface having a surface curved in a plane perpendicular to said rotation axis and surface formed at the central portion thereof to supply magnetic flux of even magnetic flux density to a portion around said magnetic detector, wherein:

the central portion of said permanent magnet is thicker than others to make magnetic flux density constant in the vicinity of said magnetic detector in a direction in parallel with the diametrically extending axis; and

the elliptical columnar surface has a surface of a multidimensional curve.

22. (Original) The rotation angle detecting device according to claim 21,

wherein said permanent magnet has a circumferentially extending rut-shape concavity.

Claims 23 and 24. (Canceled).

25. (New) A rotation angle detecting device for a rotary object comprising:

a rotor connected to the rotary object and including a cylindrical yoke and a pair of permanent magnets fixed to said yoke at portions thereof opposite to each other, said pair of permanent magnets being magnetized in a direction to provide magnetic flux flowing from one of the permanent magnets to the other to pass a preset portion on the rotation axis; and

a magnetic detector, disposed at the preset portion for detecting magnetic flux density of the magnetic flux; wherein:

at least one of said pair of permanent magnets has an axially extending elliptic columnar surface having a central portion thicker than others; and

the elliptic columnar surface has a surface of a multidimensional curve disposed at a radially inner surface of said permanent magnets.